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**ARIZONA CORPORATION COMMISSION**

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July 25, 2005

Chairman Jeff Hatch-Miller  
Commissioner William A. Mundell  
Commissioner Marc Spitzer  
Commissioner Kristin K. Mayes

Re: Environmental Portfolio Standard Rules  
Docket No. RE-00000C-05-0030

Dear Colleagues:

Great effort and study has gone into the development and subsequent discussion of the proposed Environmental Portfolio Standard (EPS) rules. So far, however, little thought has been given to the non-firm and non-dispatchable characteristics of most renewable resources. Because these characteristics will profoundly and inextricably affect the reliability and cost of power, they must be fully factored into our decision about the amount and type of renewable energy mandated under the EPS.

The definition of renewable resources in the proposed EPS rules excludes all conventional sources of firm power. Power from landfill gas, biomass, geothermal and small hydro may be considered firm, but realistically, these sources can be expected to contribute only small amounts towards meeting EPS obligations in Arizona for the foreseeable future. In contrast, solar and wind generation are potentially significant contributors, but because generation from these resources is subject to vagaries of weather, they do not and cannot provide firm dispatchable power.

To appreciate the potential negative effects that an over commitment to non-firm power could have on reliability, one need only recall July 17<sup>th</sup> here in the Phoenix metro area. Early that Sunday afternoon, extensive cloud cover from thunderstorms developing on the Mogollon Rim quickly and completely overcast the Valley, well before the temperature reached a record high for that date of 116° at 3:16 p.m. This cloud cover would have greatly reduced power from both distributed and central-station solar generation, and had a large percentage of electricity demand been supplied by such systems, only a spinning reserve would have averted the need to shed load. The relevance of this example is not diminished by its anecdotal nature any more than the lessons of the Westwing fire should be discounted in the future because of the uniqueness of the events leading to the crisis.

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To maintain grid reliability, the amount of mandated non-firm, non-dispatchable power must be backed up with spinning reserve. The costs of this backup infrastructure must therefore be included in the cost of energy that is generated from non-firm renewable resources, just as the costs of reserve power infrastructure are now charged to the power actually sold. These costs are difficult to determine, but reasonable and conservative estimates per kWh are \$.005 for transmission, \$.025 for distribution and \$.041 for maintenance and ownership, including financing costs, taxes and depreciation. These costs, which amount to \$.071 per kWh, must be charged to the EPS funds, and in keeping with Commissioner Spitzer's letter of June 29<sup>th</sup>, should be accurately explained to the ratepayers.

Cost is certainly an important factor that we must consider in deciding how much non-firm and non-dispatchable renewable energy to require under the EPS, but reliability is paramount. If a large percent of non-firm renewable power is mandated, but not backed up with firm spinning reserve, the reliability of the grid will be compromised. Grid reliability must be protected at all costs, and mandatory non-firm, non-dispatchable power without firm dispatchable back-up is a recipe for disaster.

If the draft renewable rules are enacted, there will be distortions of the markets for electrical power, increased cost to the ratepayers, decreases in base capacity grid reliability and diversion of resources from promising research into new sources of energy. In addition, real environmental costs due to outdated technology, government mandates, special interests and mistaken theories will be passed on to the ratepayers disguised as normal production expenses.

Sincerely,

A handwritten signature in dark ink, appearing to read "Mike", written in a cursive style.

Mike Gleason  
Commissioner